

Amendment to the Claims:

The listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-15 (Cancelled).

24. (Previously Presented) A method for distinguishing at least two target bio-organic molecules with dyes selected from a pool of at least two dyes, the method comprising:

(a) providing a first set of at least two probes, wherein each probe recognizes a target bio-organic molecule in a first set of target bio-organic molecules, and wherein each probe is distinctly-labelled with primary labels that are distinct from one another due to the presence of dyes in distinct ratios;

(b) providing a second set of probes distinctly-labelled with said primary labels described in step (a), wherein each probe in said second probe set recognizes a target bio-organic molecule in a second set of target bio-organic molecules;

wherein each probe in said first or second probe set is further labelled with the same first binary label, wherein said first binary label is distinct from said primary labels; and

(c) contacting said at least two target bio-organic molecules with said probe sets,

wherein said target bio-organic molecules are distinguished.

25. (Previously Presented) A method according to Claim 24 further providing an additional probe set distinctly labelled with said primary labels, wherein each probe in said additional probe set recognizes target bio-organic molecule(s) in an additional target set, and

wherein each probe in said additional set is further labelled with the same second binary label, wherein said second binary label is distinct from said primary labels and said first binary label.

26. (Previously Presented) A method according to Claim 24 wherein said primary labels are distinct from one another due to the presence of two dyes in distinct ratios.

27. (Previously Presented) A method according to Claim 24, wherein at least one of said bio-organic molecules comprises a nucleic acid, protein, carbohydrate and/or lipid.

28. (Previously Presented) A method according to Claim 24, wherein said pool comprises three dyes.

29. (Previously Presented) A method according to Claim 24, wherein said labelling comprises nick translation, random primed labelling, PCR-labelling or chemical labelling.

30. (Previously Presented) A method according to Claim 24 wherein said binary label is a hapten.

Claims 31- 33 (Cancelled).